

New Book Highlights Developments in Robotics, Driverless Vehicles, 3D Printing, and Artificial Intelligence

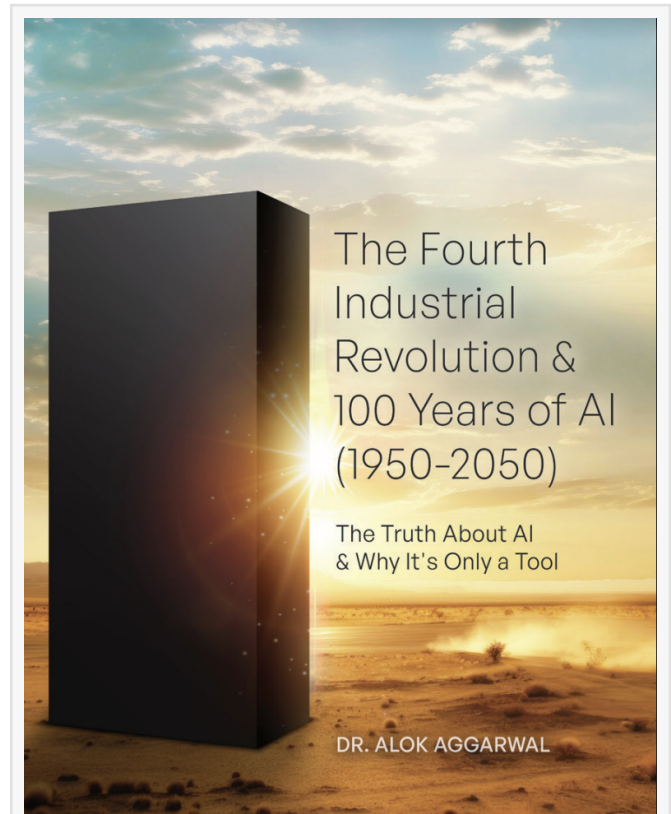
Researcher and innovator Alok Aggarwal explores impact of the Fourth Industrial Revolution and how it will evolve during the next three decades

SAN JOSE, CALIFORNIA, USA, March 14, 2024 /EINPresswire.com/ -- The ninth chapter of Alok Aggarwal's new book, "[The Fourth Industrial Revolution & 100 Years of AI \(1950-2050\)](#)" - titled "Robotics, Driverless Vehicles, 3D Printing, and AI"- discusses several key inventions of the Fourth Industrial Revolution and how Data Science and AI are improving them.

In 2016, Hanson Robotics unveiled Sophia, a humanoid robot that has since captivated the world with its advanced capabilities and lifelike features. Sophia's "practical" legs enable walking, while its "lifelike" skin and over 50 simulated "facial expressions" contribute to a remarkably human-like appearance. Over the last five years, Sophia has transcended the realm of technology, making appearances on major TV channels such as CBS 60 Minutes, Good Morning Britain, and CNBC. It has also been featured in news media outlets including Forbes, Mashable, The New York Times, The Wall Street Journal, and The Guardian.

Beyond Sophia's individual achievements, the key takeaways of Chapter 9 include:

- Robots are usually categorized into six groups: Since inception in 1937, the field of robotics has improved tremendously and is one of the key invention areas during the current industrial revolution. Contemporary Robots can be grouped in six broad categories: (a) industrial, collaborative, and medical Robots, (b) mobile Robots, (c) remote controlled Robots, (d) nanobots, (e) humanoid Robots and chatbots, and (f) stationary Robots and robotic process automation.



The Fourth Industrial Revolution & 100 Years of AI (1950-2050)

- Robots are being used pervasively: Robots are now being used in many domains including manufacturing (especially for automobiles and semiconductors), healthcare, military and civilian response applications, hazardous environments and rescue operations, space exploration, agriculture, construction and mining, and customer service.
- Huge datasets and AI are improving Robots' functioning: Large amounts of noise free data and the following advanced AI techniques are being used to enormously improve the functioning of Robots: Computer Vision, Natural Language Processing, Edge computing, Machine Learning, use of expert systems. Sophisticated AI systems are also being used for understanding and exhibiting emotions, intelligent automation, motion control, optimizing movement of Robots, collision avoidance, and in grasping as well as manipulating objects.
- Autonomous Vehicles – advances and limitations: Driverless vehicles have made considerable advances with respect to those in the early 1990s and to a certain extent they can drive on roads in an urban environment without a human driver close by. However, they still suffer from the following limitations that will restrict their use for the next ten years or more: limited sensors that fail in bad weather; lack of intuition (with respect to driving); costly maps to create and maintain; inadequate cybersecurity; lack of public enthusiasm in riding them; and lack of government regulations and insurance coverage.
- Three-dimensional printing is beginning to be used broadly: Three-dimensional printing (also known as additive manufacturing) is another key invention area in the current industrial revolution and will be widely used within the next 10-15 years. This process involves constructing a 3D object from a computer aided design model, or digital three-dimensional model, or a Digital Twin Prototype. During construction, a computer program or a robot controls the processes by which materials are deposited, soldered, joined, or otherwise unified – layer by layer – to create the required 3D object.
- Three-dimensional printing is also being used to build Robots: 3D printing is already being used to create various kinds of Robots and their components, thereby saving time, labor, and cost, and in reducing materials' wastage considerably. Hence, many manufacturers of Robots and their components have already embraced 3D printing whereas others are likely to do so soon.
- Datasets and AI are also improving 3D printing: Large datasets and Artificial intelligence is already being used to improve 3D printing by helping researchers finding novel materials that can be used for this process, improving efficiency during prefabrication stage, and detecting defects in real-time automatically.

Overall, the book, "The Fourth Industrial Revolution & 100 Years of AI (1950-2050)" provides a concise yet comprehensive exploration of AI, covering its origins, evolutionary trajectory, and its potential ubiquity during the next 27 years. Beginning with an introduction to the fundamental concepts of AI, subsequent chapters delve into its transformative journey with an in-depth analysis of achievements of AI, with a special focus on the potential for job loss and gain. The latter portions of the book examine the limitations of AI, the pivotal role of data in enabling accurate AI systems, and the concept of "good" AI systems. It concludes by contemplating the future of AI, addressing the limitations of classical computing, and exploring alternative technologies (such as Quantum, Photonics, Graphene, and Neuromorphic computing) for

ongoing advancements in the field. This book is now available in bookstores and online retailers in Kindle, paperback, and hard cover formats.

About the Author: Dr. Alok Aggarwal is the founder, CEO, and Chief Data Scientist of Scry AI, which provides innovative AI-based products, solutions, and services to enterprises across the globe. Before starting Scry AI, he co-founded Evalueserve (www.evalueserve.com) which provides research and analytics services worldwide. He received his Ph. D. from Johns Hopkins University and worked at IBM's T. J. Watson Research Center during 1984 and 2000. He has written more than 120 research articles and has been granted eight patents. For more information, please visit: www.scryai.com

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